

**ABSTRACT**

A system, method and computer program product for processing event records. The present invention includes a detection layer, an analysis layer, an expert systems layer and a presentation layer. The layered system includes a core  
5 infrastructure and a configurable, domain-specific implementation. The detection layer employs one or more detection engines, such as a rules-based thresholding engine and a profiling engine. The detection layer can include an Artificial Intelligence based pattern recognition engine for analyzing data records, for detecting new and interesting patterns and for updating the detection engines to insure that the  
10 detection engines can detect the new patterns. In one embodiment, the present invention is implemented as a telecommunications fraud detection system. When fraud is detected, the detection layer generates alarms which are sent to the analysis layer. The analysis layer filters and consolidates the alarms to generate fraud cases. The analysis layer preferably generates a probability of fraud for each fraud case. The  
15 expert systems layer receives fraud cases and automatically initiates actions for certain fraud cases. The presentation layer also receives fraud cases for presentation to human analysts. The presentation layer permits the human analysts to initiate additional actions.